XI. Controller Cabinet

The Model 332B Cabinet and Model 336A Cabinet cabinets shall meet the applicable specifications detailed in the Caltrans Specifications* as well as additional requirements that follow. The cabinets shall be unpainted natural aluminum. The output file must be capable of flashing all 8 phases red or yellow. The three-point locking mechanism shall be fabricated so that it may be actuated by rotating a removable 15 mm hex key. The hex socket and locking cam shall rotate on a 19 mm minimum diameter shaft.

The socket and shaft shall be field-replaceable with common tools. The socket head shall be protected from being rotated with a pipe wrench or similar tool. One aluminum hex wrench shall be provided with each cabinet.

The cabinet assembly shall be provided with a Power Distribution Assembly (PDA) number 2 and the circuit option (Section 6.4.3.9 of the Caltrans Specifications*).

All #8 conductors from service panel (TBS) and mercury contactor to signal bus and main equipment bus shall be 133 strand #29 AWG electronic hook-up wire.

A hybrid power line surge protection device such as the EDCO Surrestor SHA-1210 or equal shall be furnished in each controller cabinet. The protector shall be installed between the applied line voltage and earth ground. The surge protector shall be capable of reducing the effects of transient voltages apliled to the AC line. The protector shall be mounted inside the PDA#2. The Equipment Line Out shall provide filtered power to the controller, 24 VDC power supply, input file and conflict monitor through shielded cable or twisted pair to the units AC plus and AC minus inputs.

The protector shall include the following features and functions:

Maximum AC line voltage: 140 VAC.

Twenty pulses of peak current, each of which will rise in 8 microseconds and fall in 20 microseconds to one-half the peak: 20,000 Amperes.

The protector shall be provided with the following terminals:

Main line (AC Line first stage terminal).

Main Neutral (AC Neutral input terminals).

Equipment Line Out (AC Line second stage output terminal, 10 Amps.).

Equipment Neutral Out (Neutral terminal to protected equipment).

GND (Earth connection).

The Main AC line in and the Equipment Line out terminals shall be separated by a 200 Microhenry (minimum) inductor rated to handle 10 Amp AC Service.

The first stage clamp shall be between Main Line and Ground terminals.

The second stage clamp shall be between Equipment Line Out and Equipment Neutral.

Each cabinet shall be furnished with a communications terminal block, C2P harness and connector, voice jack harness, and voice jack, conforming to the requirements detailed in the Caltrans Specifications*.

TBO/Communications Termination Block – This terminal block will serve as the termination block for the communication conductors, overvoltage protection devices, and the termination points for the C2P harness and conductors. Install over voltage protection ground bus and hard wire to eqipment ground bus with #8AWG wire.

C2P Harness and Connector – A four-conductor, jacketed cable shall be attached to the terminal block with locking spade lugs. The cable shall terminate in a standard C2P connector and shall be routed through the cabinet and be of sufficient length to reach the C2S connector on the back of the 170 controller unit when the unit is installed in the equipment rack.

Voice Jack Harness – A two-conductor twisted, jacketed cable shall be attached to the terminal block with locking spade lugs. The cable shall be routed to the voice jack.

Voice Jack – A voice communications jack shall be installed with solder lugs extending out of the side of the jack housing and shall have a cover.

Input files printed circuit board must be accessible without lowering or removing panel.

Each terminal on output terminal blocks to be marked as per phase function.

Jumper I 13-K to I 13-E to I 12-E to I 12-K to I 16-2.

Provide Fiberglas disposable filters in lieu of metal filters.

The lifting eyes shall be removable.

Interchangeability of the Isolation Relay and Logic Relay shall not be possible.

Flash blocks to be accessible without lowering or opening any service panels and marked as per phase.

Red interface adapter to be programmable without tools.

Red interface adapter to be accessible without lowering or opening access panels.

Provide cable tie down (Richo #CFC C-8) or equivalent to secure red interface adapter cable to the bottom of the output file.

Anchor bolts to be provided with 332B Cabinet.

Additional Model 336A Cabinet Specifications:

The cabinet shall be a weatherproof, outdoor, pole-mounted or pedestal-mounted type with overall dimensions not to exceed 970 mm high by 560 mm wide by 510 mm deep. The cabinet will utilize all the standard plug-in modules that are utilized by the Type 336 Caltrans cabinets.

The bottom of all 336A cabinets shall be solid plate and be reinforced with a 510 mm x 560 mm 9.5 mm aluminum base plate continuously welded to the inside bottom of the cabinet.

Cabinets shall be attached to the pole using two aluminum mounting brackets, mounted top and bottom, for each cabinet. The brackets shall be secured to the cabinets using appropriate stainless steel mounting bolts and washers. The brackets shall be secured to the pole by appropriate banding buckles and couplings.

Door opening flange around the door opening shall be 19 mm wide.

Steel rails shall be provided in lieu of the rack cage for mounting of the controller and cabinet assemblies. The rail assembly shall consist of 4 EIA threaded rails bolted to the two sides at the front and rear of the cabinet. The rails shall be threaded in the same manner and pattern as the Model 332 cabinet cage. The rails shall be plated as specified in Caltrans Specifications*, Section 1.2.8.3.2.

The cabinet, if used for school signal control, shall be modified to operate flashing beacons by time-of-day, day-of-week through controller output.

XII. Switch Pack

The components of the three solid state switches, enclosed in the load switch, shall be of interchangeable, modular cube design.
Cube to be mounted separate from circuit board for ease of replacement.
Housing and handle to be constructed of metal, suitably protected against corrosion.

XIII. Flasher Unit

Each of the two load circuits contained in the Flasher Unit shall be of interchangeable cube design.

Cube to be mounted separate from circuit board for ease of replacement.

Housing and handle to be constructed of metal, suitably protected against corrosion.